12. (Original) The vaccine of claim 8, said vaccine further comprising a pharmaceutically acceptable carrier.

REMARKS

Claims 1, 3-7 and 8-12 have been examined and rejected. Reconsideration is respectfully requested.

Rejections Under 35 U.S.C § 112

Claims 3 and 8-9 have been rejected for lack of proper scope of enablement, the Examiner saying that the specification does not give sufficient guidence to identify immunogenically effective portions or fragments. With respect, Applicants point the Examiner to at least p. 10, first paragraph, and p. 12, Oral challenge and immunization, and to the references cited therein. Applicants submit that following the teachings of the specification was well within the capabilities of those of ordinary skill at the time the application was filed. Thus, Applicants submit that the rejection has been overcome.

These same sections in the specification make clear that the claim limitation referenced in ¶ 4 (and 5-6) means portions shown to be effective in as assay such as that on p. 10. Thus, this rejection is overcome.

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WEINGARTEN, SCHURGIN,
GAGNEBIN & LEBOVICI LLP
TEL. (617) 542-2290
FAX. (617) 451-0313

Applicants submit that the rejection in ¶ 7 is not understood as Applicants believe that claim 3 is in the form "selected from the group consisting of A, B and C." Clarification is respectfully requested.

As to ¶ 8, claim 5 has been amended as requessted.

Rejections Under 35 U.S.C §§ 102 and 103

Applicants submit that the cited references have not been characterized correctly by the Examiner in relationship to the Applicants' claims. The correct characterization of the teachings of these references is given below.

1. Barr et al.

This reference deals with an outer membrane protein or polypeptides from *P. gingivalis* and its use as an immunogen in a mouse abscess model. This differs from the current patent application in that the endpoint or measure of protection with this protein is different from the endpoint or measure of protection of Applicants' claims. Barr et al. is looking at protection from the formation of an abscess on the skin following direct injection of *P. gingivalis*, whereas the pending claims are directed at protection from atherosclerosis in response to oral

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WEINGARTEN, SCHURGIN,
GAGNEBIN & LEBOVICI LLP
TEL. (617) 542-2290
FAX. (617) 451-0313

infection with *P. gingivalis*. Thus, there are differences with the antigen used, the delivery of the bacteria, and the endpoints of disease. Aplicants submit that the assertins of Barr et al. are merely gratuitous and that those experimenting in the field would not accept them as true until positive experimental results were obtained.

2. Evans et al.

This reference describes studies on the use of immunization with an outer membrane protein from *P. gingivalis* (fimbriae) in a rat model of oral bone loss. In addition, this reference also used heat-killed preparation of whole *P. gingivalis* as an antigen. The differences between this reference and the current pending patent application is that Evans et al. looked at the ability of *P. gingivalis* antigens to protect against oral bone loss in a rat model. In contrast, the pending claims are directed to protection from atherosclerosi,s which is a totally different inflammatory process in a different host organ.

3. Potempa et al.

This patent describes the use of arginine-specific protease of *P. gingivalis* and peptides derived from this protease from

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WEINGARTEN, SCHURGIN,
GAGNEBIN & LEBOVICI LLP
TEL. (617) 542-2290
FAX. (617) 451-0313

protection against *P. gingivalis* infection in a mouse chamber model. The measure of protection with this protein is different from the measure of protection of obtained according to the invention. Potempa et al. is directed to protection from bacterial colonization and from the formation of an abscess on the skin following injection of *P. gingivalis* in a subcutaneous chamber, whereas the pending claims are directed at protection from atherosclerosis in response to oral infection with *P. gingivalis*. Thus, there are differences with the antigen used, the delivery of the bacteria, and the endpoints of disease.

4. Fletcher et al.

This patent is directed to a mutant strain of *P. gingivalis* in the *recA* gene. This mutant was used as an imunogen and was shown to protect against the same symptoms in a subsequent challenge with another strain of *P. gingivalis*. The measure of protection desctibed in Evans et al. is also different from the measure of protection claimed herein. Fletcher et al. is directed to protection from bacterial colonization and from the formation of an abscess on the skin following injection of *P. gingivalis* in a subcutaneous chamber, whereas the pending claims are directed to protection from atherosclerosis in response to oral infection with

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WEINGARTEN, SCHURGIN,
GAGNEBIN & LEBOVICI LLP
TEL. (617) 542-2290
FAX. (617) 451-0313

P. gingivalis. Thus, there are differences with the antigen used (different bacterial strain), the delivery of the bacteria, and the endpoints of disease.

In summary, although immunization in its own right is not a novel strategy to prevent infectious disease, immunization to prevent infection-accelerated atherosclerosis is not a logical extension of previous studies performed in the area of infection-accelerated atherosclerosis, specifically because a consensus had not been established among those of skill in the art at the time the application was filed supporting the contention that any infectious agent or the disease it causes could provide an increased risk for atherosclerosis. The four references discussed above do not examine any aspect of immunization to prevent infection-accelerated atherosclerosis. It took the Applicants work to establish this connection definitively.

Applicants respectfully submit that the Examiner's rejections for anticipation or for obviousness over any of the above references, alone or in combination, is impermissible hindsight rejection through the use of the Applicants' teachings.

Thus, Applicants submit that all claims are in condition for allowance and such action is requested.

Attorney Docket No. BU-096XX
WEINGARTEN, SCHURGIN,
GAGNEBIN & LEBOVICI LLP
TEL. (617) 542-2290
FAX. (617) 451-0313

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The Examiner is encouraged to telephone the undersigned attorney to discuss any matter that would expedite allowance of the present application.

Respectfully submitted,

CAROLINE A. GENCO et al.

By: Holliday C. Heine

Holliday C. Heine, Ph.D.
Registration No. 34,346
Attorney for Applicant(s)

WEINGARTEN, SCHURGIN,
GAGNEBIN & LEBOVICI LLP
Ten Post Office Square
Boston, MA 02109
Telephone: (617) 542-2290
Telecopier: (617) 451-0313

HCH/dvm

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Attorney Docket No. BU-096XX
WEINGARTEN, SCHURGIN,
GAGNEBIN & LEBOVICI LLP
TEL. (617) 542-2290
FAX. (617) 451-0313